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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/809,467	03/26/2004	Andrew M. Rolt	84738/3119 KAW	7629
20736	7590	12/29/2005	EXAMINER	
MANELLI DENISON & SELTER 2000 M STREET NW SUITE 700 WASHINGTON, DC 20036-3307			KIM, TAE JUN	
			ART UNIT	PAPER NUMBER
			3746	

DATE MAILED: 12/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

*Tech*

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/809,467	ROLT, ANDREW M.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Ted Kim	3746	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 December 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-42 is/are pending in the application.
- 4a) Of the above claim(s) 3,4,8,9,16-18,21-37 and 40 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,5-7,10-15,19,20 and 38 is/are rejected.
- 7) ☒ Claim(s) 39,41 and 42 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>03/26/2004</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restriction***

1. Applicant's election of Species I without traverse on 12/8/2005 is noted and applicant elected claims 1, 2, 5-15, 18-20, 38, 39, 41, 42. However, claims 8, 9 do not read on species I; claim 18 does not read on species I but on species II. Consequently, claims 3, 4, 8, 9, 16-18, 21-37 and 40 have been withdrawn.

### ***Drawings***

2. The drawings are objected to because in Fig. 1, "115" should be -151-. Also the leadline for 135 is supposed to be drawn to the turbine. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.
3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: "136 (see pg. 7, line 31), splitter 116 (pg. 9, line 22), also variable pitch blades 130 (page 10, line 26). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Specification***

4. The disclosure is objected to because of the following informalities: on page 9, lines 9-12, "the downstream turbine [111] should be added here]" and "second low pressure turbine 111" are referenced but however, the fact that they are the same turbine

should be emphasized by adding the element number above or by other appropriate amendment.

Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

6. Claims 1, 5, 6, 10, 14, 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Giffin, III et al (4,254,619). Giffin, III et al teach a bypass turbofan engine comprises a 1<sup>st</sup> propulsion system (left engine 10) and a 2<sup>nd</sup> propulsion system (right engine 10), the 1<sup>st</sup> propulsion system comprises a 1<sup>st</sup> fan rotor 26, a core engine 12, a 1<sup>st</sup> low pressure turbine 19 and a first fan shaft 24 drivingly connecting the 1<sup>st</sup> turbine and the 1<sup>st</sup> fan rotor, the 2<sup>nd</sup> propulsion system comprises a 2<sup>nd</sup> fan shaft 24 drivingly connecting to a 2<sup>nd</sup> fan rotor 26, the 2<sup>nd</sup> fan shaft 24 is drivingly connected to the 1<sup>st</sup> propulsion system characterized in that the 1<sup>st</sup> and 2<sup>nd</sup> shafts are not coaxial with one another; the core engine comprises a core compressor 13, a combustor 18 and a core turbine 31, the core compressor 13 is drivingly connected to the core turbine 31 via a core shaft 23, the core shaft is coaxial with the 1<sup>st</sup> shaft 24 and the core compressor 13 is drivingly connected to the core turbine 31 via the 1<sup>st</sup> shaft 24, the 2<sup>nd</sup> fan system comprises a 2<sup>nd</sup> low pressure turbine 31 drivingly connected via the 2<sup>nd</sup> shaft 24 to the 2<sup>nd</sup> fan rotor 26. The shafts are angled between 0-40 degrees [0 degrees] relative to one another so that the shafts converge in the downstream direction; the rotational speeds of the at least two fans are synchronized over at least part of the fan's speed range by a variable area core nozzle 41 (see dashed lines) in Fig. 1.

7. Claims 1, 2, 5, 6, 10, 15, are rejected under 35 U.S.C. 102(e) as being anticipated by Franchet et al (6,845,606). Franchet et al teach a bypass turbofan engine comprises a 1<sup>st</sup> propulsion system 1 and a 2<sup>nd</sup> propulsion system 14, the 1<sup>st</sup> propulsion system 1 comprises a 1<sup>st</sup> fan rotor (not labeled but seen at the upstream end of the engine), a core

engine, a 1<sup>st</sup> low pressure turbine and a first fan shaft drivingly connecting the 1<sup>st</sup> turbine and the 1<sup>st</sup> fan rotor, the 2<sup>nd</sup> propulsion system comprises a 2<sup>nd</sup> fan shaft drivingly connecting to a 2<sup>nd</sup> fan rotor 18, the 2<sup>nd</sup> fan shaft 18 is drivingly connected to the 1<sup>st</sup> propulsion system characterized in that the 1<sup>st</sup> and 2<sup>nd</sup> shafts are not coaxial with one another; the core engine comprises a core compressor 4, a combustor 6 and a core turbine 8, the core compressor is drivingly connected to the core turbine via a core shaft, the core shaft is coaxial with the 1<sup>st</sup> shaft and the core compressor is drivingly connected to the core turbine via the 1<sup>st</sup> shaft (see col. 3, lines 6+), the 2<sup>nd</sup> fan system comprises a 2<sup>nd</sup> low pressure turbine 16 drivingly connected via the 2<sup>nd</sup> shaft to the 2<sup>nd</sup> fan rotor 18, a fluid flow via 22 from the core engine flows drivingly through the 1<sup>st</sup> and 2<sup>nd</sup> low pressure turbines 8, 16. The shafts are angled between 0-40 degrees [0 degrees] relative to one another so that the shafts converge in the downstream direction; the shaft is an angled shaft, the shaft comprising a forward portion and a rearward portion. The rotational speeds of the at least two fans are synchronized over at least part of the fan's speed range by a variable area bypass nozzle 20.

8. Claims 1, 2, 5, 6, 10, are rejected under 35 U.S.C. 102(b) as being anticipated by Hewson (3,368,352). Hewson (Fig. 6 particularly) teaches a bypass turbofan engine comprises a 1<sup>st</sup> propulsion system 201 and a 2<sup>nd</sup> propulsion system, the 1<sup>st</sup> propulsion system comprises a 1<sup>st</sup> fan rotor, a core engine, a 1<sup>st</sup> low pressure turbine and a first fan shaft drivingly connecting the 1<sup>st</sup> turbine and the 1<sup>st</sup> fan rotor (see e.g. embodiment of Fig. 5 for engine details), the 2<sup>nd</sup> propulsion system comprises a 2<sup>nd</sup> fan shaft 206

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drivingly connecting to a 2<sup>nd</sup> fan rotor 205, the 2<sup>nd</sup> fan shaft 206 is drivingly connected to the 1<sup>st</sup> propulsion system characterized in that the 1<sup>st</sup> and 2<sup>nd</sup> shafts 206 are not coaxial with one another; the core engine comprises a core compressor, a combustor and a core turbine, the core compressor is drivingly connected to the core turbine via a core shaft, the core shaft is coaxial with the 1<sup>st</sup> shaft and the core compressor is drivingly connected to the core turbine via the 1<sup>st</sup> shaft (see Fig. 5), the 2<sup>nd</sup> fan system comprises a 2<sup>nd</sup> low pressure turbine 204 drivingly connected via the 2<sup>nd</sup> shaft 206 to the 2<sup>nd</sup> fan rotor 205, a fluid flow from the core engine via 202 flows drivingly through the 1<sup>st</sup> and 2<sup>nd</sup> low pressure turbines. The shafts are angled between 0-40 degrees [0 degrees] relative to one another so that the shafts converge in the downstream direction; the shaft is an angled shaft, the shaft comprising a forward portion and a rearward portion, the portions are drivingly connected via an angled drive and are arranged to minimize the angle between the forward portion and another shaft of the engine.

### ***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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10. Claims 10-12, 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over any of the above applied in view of Snell (3,318,095). The above applied art teach arrangements where the shafts of the 1<sup>st</sup> and 2<sup>nd</sup> propulsion systems are substantially parallel to each other but do not teach the shafts are inclined toward one another. Snell '095 teaches that it is old and well known in the gas turbine engine art to make the 1<sup>st</sup> propulsion system 110 and the 2<sup>nd</sup> propulsion system with shafts that are inclined toward each other, including in the claimed ranges. Such an arrangement will result in a shorter overall engine structure and a shorter engine reduces the weight. It would have been obvious to one of ordinary skill in the art to employ an inclined arrangement as taught by Snell, in order to shorten the overall engine structure and reduce the weight. As for the precise range of the angles, this is deemed an obvious matter of finding the workable ranges in the art. It would have been obvious to one of ordinary skill in the art to employ the claimed ranges as an obvious matter of finding the workable ranges in the art.

11. Claims 1, 2, 5, 6, 10-12, are rejected under 35 U.S.C. 103(a) as being unpatentable over in view of Snell (3,318,095) in view of any of Hewson (3,368,352), Franchet et al (6,845,606) and Hope (3,659,422). Snell teach a bypass turbofan engine comprises a 1<sup>st</sup> propulsion system 110 and a 2<sup>nd</sup> propulsion system, the 1<sup>st</sup> propulsion system 110 comprises a core engine, a 1<sup>st</sup> low pressure turbine 118 and a shaft drivingly connecting the 1<sup>st</sup> turbine and the compressor, the 2<sup>nd</sup> propulsion system comprises a 2<sup>nd</sup> fan shaft 116 drivingly connecting to a 2<sup>nd</sup> fan rotor 114, the 2<sup>nd</sup> fan shaft 116 is drivingly connected to the 1<sup>st</sup> propulsion system characterized in that the 1<sup>st</sup> and 2<sup>nd</sup> shafts are not



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coaxial with one another; the core engine comprises a core compressor, a combustor and a core turbine, the core compressor is inherently drivingly connected to the core turbine via a core shaft, the 2<sup>nd</sup> fan system comprises a 2<sup>nd</sup> low pressure turbine 115 drivingly connected via the 2<sup>nd</sup> shaft 116 to the 2<sup>nd</sup> fan rotor 114, a fluid flow from the core engine via 119 flows drivingly through the 1<sup>st</sup> and 2<sup>nd</sup> low pressure turbines 118, 115. The shafts are angled between 0-40 degrees and between 10-30 degrees relative to one another so that the shafts converge in the downstream direction; the shaft is an angled shaft, the shaft comprising a forward portion and a rearward portion, the portions are drivingly connected via an angled drive and are arranged to minimize the angle between the forward portion and another shaft of the engine. Snell does not teach a fan with the main gas turbine engine 110. However, employ a fan upstream or as part of the main gas turbine engine is well known in the art. Hope teaches a fan 25 upstream of the main engine 29 and auxiliary engines 34, 35. Franchet illustrates a fan (upstream end of engine 1) at the upstream end of the main engine 1 and further teaches that variable shaft arrangements can be employed, including all the conventional arrangements in the art (col. 3, lines 6+). Hewson (Fig. 5) teaches a fan 121 upstream of the main gas turbine engine is old and well known in the art. It would have been obvious to one of ordinary skill in the art to employ a fan upstream of the main engine and part thereof, in order to enhance the engine thrust and/or efficiency as is well known in the art. As for the precise range of the angles, this is deemed an obvious matter of finding the workable ranges in

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the art. It would have been obvious to one of ordinary skill in the art to employ the claimed ranges as an obvious matter of finding the workable ranges in the art.

12. Claims 14, 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over any of the above applied art and further in view of Hope (3,659,422). The above applied art does not teach both the variable area core nozzle and the variable area fan nozzle. Hope teaches a gas turbine engine with a variable area exhaust for the core nozzle via 28 and for the fan bypass flow by the 54 (see col. 6, lines 50+). It would have been obvious to one of ordinary skill in the art to employ a variable area exhaust for both the bypass nozzle and core nozzle to allow greater control over the thrust of the engine.

13. Claim 13, 19, 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over any of the above applied art, and further in view of Johnson et al (4,222,233). The prior art do not teach a variable turbine nozzle for controlling the variable capacity turbine. Johnson et al teach a variable capacity turbine nozzle 66 with variable pitch blades for controlling the turbine flow and increasing the efficiency (see col. 4, lines 19-35). It would have been obvious to employ variable pitch blades to control the turbine flow and improve the efficiency.

14. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over any of the above applied art in view of Coplin (4,827,712). The above applied art do not teach a booster compressor for the core engine. Using a booster compressor 96 for the core engine is old and well known in the art as taught by Coplin in order to increase the pressure and airflow through the core engine (col. 1, lines 47-59) and/or increase

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efficiency and/or increase thrust. It would have been obvious to one of ordinary skill in the art to employ a booster compressor in order to increase the pressure and airflow through the core engine and/or increase efficiency and/or increase thrust.

***Allowable Subject Matter***

15. Claims 39, 41-42 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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***Contact Information***


Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Ted Kim whose telephone number is 571-272-4829. The Examiner can be reached on regular business hours before 5:00 pm, Monday to Thursday and every other Friday.

The fax numbers for the organization where this application is assigned are

571-273-8300 for Regular faxes and 571-273-8300 for After Final faxes.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Thorpe, can be reached at 571-272-4444.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist of Technology Center 3700, whose telephone number is 703-308-0861. General inquiries can also be directed to the Patents Assistance Center whose telephone number is 800-786-9199. Furthermore, a variety of online resources are available at <http://www.uspto.gov/main/patents.htm>

	
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